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NEWS

NREL Theorist Recognized for Highest Citation Impact

Golden, Colo., August XX, 2004 — Dr. Alex Zunger, Research Fellow at the U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL), is a co-author of the paper that has the 5 th highest citation impact over the past 110 years according to a recent analysis of the 329,000 manuscripts that have appeared from 1893 to 2003 in the prestigious physics journal *Physical Review* .

Zunger's work with co-author J.P. Perdew on "Self-interaction Correction to the Density Functional Approximations for Many-Electron Systems" published in Phys. Rev. B23, 5048 (1981) was named the fifth highest-impact paper out of more than three million citations to the 329,000 papers published in Physical Review in over a Century ,between 1893 through 2003.The prestigious Physical Review covers all branches of physics ,including atomic ,molecular, nuclear, statistical and condensed-matter physics, as well as cosmology, astrophysics, and particle-physics. For this top-100 list, the citation impact was calculated based on the number of citations to a publication times the average age of those citations ,thus reflecting not only if the paper was popular ,but also if it had enduring value over the years. The survey was published by S.Redner of Boston University and appears in http://xxx.arxiv.org/abs/physics/0407137 .Zunger's paper with Perdew established a fundamental treatment of Walter Kohn's celebrated "Density Functional Theory" (ranked No.1 in the list) which enables practical predictions of the properties of solids and molecules through quantum-mechanical solutions of the pertinent (Schrodinger) equation.Nature Magazine's writer ,Phillip Ball writes about Redner's top 100 list : "Nothing ,it seems ,is more important to physicist than being able to calculate what energy states the electrons within materials have ,and how they behave ". He adds, "The names throughout Redner's top 100 list tell a similar story: It's a roll-call of physicist' physicists .Yes ,Albert Einstein (ranked no.7),and Richard Feynman (No.23) are there, but so are Eugene Wigner (No.4),Phil Anderson (No. 9) John Bardeen (No.10) ,Lars Onsager (No.16) and Pierre-Gilles de Gennes (No.21). " The Nature writeup appears in http://www.nature.com/news/2004/040726/full/040726-16.html . Zunger says : " It has come as both a remarkable honor and a surprise to gain knowledge of the fact that my paper with Perdew has had a higher impact than so many significant papers which,in the greater framework of physics are far more important".

The Israeli-educated Zunger (pos t-doctoral training at Northwestern University ;IBM Fellow at UC Berkeley) is a condensed matter theorist who conducts research on quantum-mechanical theory of semiconductors and photon energy conversion. He is a Fellow of the American Physical Society and the author or co-author of more than 400 journal articles . His research has led to several very important scientific advances, recognized (among others) by the 2001 American Physical Society Rahman Award for " his pioneering work on the computational basis for first-principles electronic structure theory of solids " ,and the 2001 TMS (The Minerals,Metals,&materials Society) John Bardeen award for " his seminal contributions to the theoretical understanding and prediction of 'spontaneous ordering ' ,phase-stability, and electronic properties of

semiconductors". According to recent research done by the Institute of Scientific Information, (http://www.sst.nrel.gov/citations.pdf) he is the 39 th most cited physicist (out of more than 500,000 physicists examined) ,based on publications in 1987-1997 in all physics journals.